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RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/883,797

DATE: 08/08/2001

TIME: 19:27:47

Input Set : N:\Crf3\RULE60\09883797.txt
Output Set: N:\CRF3\08082001\I883797.raw

4 <110> APPLICANT: Jaworski, Jan G.
 5 Post-Beittenmiller, Martha A.
 6 Todd, James
 9 <120> TITLE OF INVENTION: FATTY ACID ELONGASES
 13 <130> FILE REFERENCE: 07148/064001
 15 <140> CURRENT APPLICATION NUMBER: 09/883,797
 16 <141> CURRENT FILING DATE: 2001-06-18
 18 <150> PRIOR APPLICATION NUMBER: 08/868,373
 19 <151> PRIOR FILING DATE: 1997-06-03
 21 <160> NUMBER OF SEQ ID NOS: 22
 23 <170> SOFTWARE: FastSEQ for Windows Version 3.0
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 26 <211> LENGTH: 1560
 27 <212> TYPE: DNA
 28 <213> ORGANISM: Arabidopsis thaliana
 30 <400> SEQUENCE: 1
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 33 ggacttcaca actcttgcaa cgtgaccacc attcttctt tcttaattat tcttccttta 180
 34 accggAACCG tgctgggtca gctaaccggc ctaacgttgc atacgttctc tgagctttgg 240
 35 tctaaccagg cggttcaact cgacacgccc acgagactta cctgcttggg tttcctctcc 300
 36 ttgcgtttga ccctctacgt ggctaaccgg tctaaaccgg tttaccttagt ggatttctcc 360
 37 tgctacaaac cggaagacga gctgtaaaata tcagtagatt cgttcttgac gatgactgag 420
 38 gaaaatggat catttcaccga tgacacgggtt cagttccagc aaagaatctc gaaccggggcc 480
 39 gggttggggag acgagacgta tctgcccacgt ggcataactt caacgcccccc gaagctaaat 540
 40 atgtcagagg cacgtgccga agctgaagcc gttatgtttg gaggctttaga ttcctcttc 600
 41 gagaaaaccg gaattaaacc ggccgaagtc ggaatcttga tagtaaactg cagcttattc 660
 42 aatccgacgc cgtctctatc agcgatgatc gtgaaccatt acaagatgag agaagacatc 720
 43 aaaagttaca acctcgagg aatgggttgc tccggcgat taatctcaat cgatctcgct 780
 44 aacaatctcc tcaaagcaaa ccctaatttct tacgtgtcg tggtaagcac ggaaaacata 840
 45 accctaaact ggtacttcgg aatgaccgg tcaatgtcc tctgcaactg catttccga 900
 46 atgggcggag ctgcgatttct cctctctaaac cgccgtcaag accggaaagaa gtcaaagtac 960
 47 tcgctggtca acgtcggtcg aacacataaa ggatcagacg acaagaacta caattgcgtg 1020
 48 taccagaagg aagacgagag aggaacaatc ggtgtcttt tagctagaga gctcatgtct 1080
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 51 aaaccgtata ttccggattt caagcttagt ttcgagcatt tctgttattca cgcaggaggt 1260
 52 agagcggttc tagacgaagt gcagaagaat cttgatctca aagattggca catggAACCT 1320
 53 tctagaatga cttgcacag atttggtaac acttcgagta gctcgcttt gtatgagatg 1380
 54 gcttataccg aagctaaggg tcgggttaaa gctggtgacc gactttggca gattgcgttt 1440
 55 ggatcggtt tcaagtgtaa tagtgcgtt ggaaagcgt tacgaccgggt ttgcacggag 1500
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 59 <211> LENGTH: 520
 60 <212> TYPE: PRT
 61 <213> ORGANISM: Arabidopsis thaliana
 63 <400> SEQUENCE: 2

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64 Met Asp Arg Glu Arg Leu Thr Ala Glu Met Ala Phe Arg Asp Ser Ser
 65 1 5 10 15
 66 Ser Ala Val Ile Arg Ile Arg Arg Arg Leu Pro Asp Leu Leu Thr Ser
 67 20 25 30
 68 Val Lys Leu Lys Tyr Val Lys Leu Gly Leu His Asn Ser Cys Asn Val
 69 35 40 45
 70 Thr Thr Ile Leu Phe Phe Leu Ile Ile Leu Pro Leu Thr Gly Thr Val
 71 50 55 60
 72 Leu Val Gln Leu Thr Gly Leu Thr Phe Asp Thr Phe Ser Glu Leu Trp
 73 65 70 75 80
 74 Ser Asn Gln Ala Val Gln Leu Asp Thr Ala Thr Arg Leu Thr Cys Leu
 75 85 90 95
 76 Val Phe Leu Ser Phe Val Leu Thr Leu Tyr Val Ala Asn Arg Ser Lys
 77 100 105 110
 78 Pro Val Tyr Leu Val Asp Phe Ser Cys Tyr Lys Pro Glu Asp Glu Arg
 79 115 120 125
 80 Lys Ile Ser Val Asp Ser Phe Leu Thr Met Thr Glu Glu Asn Gly Ser
 81 130 135 140
 82 Phe Thr Asp Asp Thr Val Gln Phe Gln Gln Arg Ile Ser Asn Arg Ala
 83 145 150 155 160
 84 Gly Leu Gly Asp Glu Thr Tyr Leu Pro Arg Gly Ile Thr Ser Thr Pro
 85 165 170 175
 86 Pro Lys Leu Asn Met Ser Glu Ala Arg Ala Glu Ala Glu Ala Val Met
 87 180 185 190
 88 Phe Gly Ala Leu Asp Ser Leu Phe Glu Lys Thr Gly Ile Lys Pro Ala
 89 195 200 205
 90 Glu Val Gly Ile Leu Ile Val Asn Cys Ser Leu Phe Asn Pro Thr Pro
 91 210 215 220
 92 Ser Leu Ser Ala Met Ile Val Asn His Tyr Lys Met Arg Glu Asp Ile
 93 225 230 235 240
 94 Lys Ser Tyr Asn Leu Gly Gly Met Gly Cys Ser Ala Gly Leu Ile Ser
 95 245 250 255
 96 Ile Asp Leu Ala Asn Asn Leu Leu Lys Ala Asn Pro Asn Ser Tyr Ala
 97 260 265 270
 98 Val Val Val Ser Thr Glu Asn Ile Thr Leu Asn Trp Tyr Phe Gly Asn
 99 275 280 285
 100 Asp Arg Ser Met Leu Leu Cys Asn Cys Ile Phe Arg Met Gly Gly Ala
 101 290 295 300
 102 Ala Ile Leu Leu Ser Asn Arg Arg Gln Asp Arg Lys Lys Ser Lys Tyr
 103 305 310 315 320
 104 Ser Leu Val Asn Val Val Arg Thr His Lys Gly Ser Asp Asp Lys Asn
 105 325 330 335
 106 Tyr Asn Cys Val Tyr Gln Lys Glu Asp Glu Arg Gly Thr Ile Gly Val
 107 340 345 350
 108 Ser Leu Ala Arg Glu Leu Met Ser Val Ala Gly Asp Ala Leu Lys Thr
 109 355 360 365
 110 Asn Ile Thr Thr Leu Gly Pro Met Val Leu Pro Leu Ser Glu Gln Leu
 111 370 375 380
 112 Met Phe Leu Ile Ser Leu Val Lys Arg Lys Met Phe Lys Leu Lys Val

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Input Set : N:\Crf3\RULE60\09883797.txt
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115	405	410	415	
116	His Ala Gly Gly Arg Ala Val Leu Asp Glu Val Gln Lys Asn Leu Asp			
117	420	425	430	
118	Leu Lys Asp Trp His Met Glu Pro Ser Arg Met Thr Leu His Arg Phe			
119	435	440	445	
120	Gly Asn Thr Ser Ser Ser Leu Trp Tyr Glu Met Ala Tyr Thr Glu			
121	450	455	460	
122	Ala Lys Gly Arg Val Lys Ala Gly Asp Arg Leu Trp Gln Ile Ala Phe			
123	465	470	475	480
124	Gly Ser Gly Phe Lys Cys Asn Ser Ala Val Trp Lys Ala Leu Arg Pro			
125	485	490	495	
126	Val Ser Thr Glu Glu Met Thr Gly Asn Ala Trp Ala Gly Ser Ile Asp			
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129	515	520		
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134	<213> ORGANISM: Arabidopsis thaliana			
136	<400> SEQUENCE: 3			
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139	caagatctcc aaaacttttta cctctactta caaaaacaacc acacatctt aaccatgttc		180	
140	ttccttacc tcgctctcggt gtcgactt tacctcatga cccggcccaa acccgtttat		240	
141	ctcggtact ttagctgcta cctccaccc tcgcatctca aagccagcac ccagaggatc		300	
142	atgcaacacg taaggcttgc acgagaagca ggcgcgtgaa agcaagagtc cgattacttg		360	
143	atggacttct gcgagaagat tctagaacgt tccggctctag gccaagagac gtacgtaccc		420	
144	gaaggcttc aaacttttgc actacaacag aatttggctg tatcacgtat agagacggag		480	
145	gaagttatta ttggtgcgggt cgataatctg ttgcgaaca cgggaataaag ccctagtgtat		540	
146	ataggtataat ttgggtgaa ttcaagcaact tttatccaa cacccgtct atcaagtatc		600	
147	tttagtgaata agttaaact tagggataat ataaagagct tgaatcttgg tggatgggg		660	
148	tgtagcgctg gagtcatcgct tatcgatcgct gctaagagct ttttacaatgt tcataaaaaac		720	
149	acttatgctc ttgtgggtgag cacggagaac atcactcaaa acttgcataat gggtaacaac		780	
150	aaatcaatgt ttggttacaaa ctgttttttc cgtataggtg gggccgcgt tttgtttct		840	
151	aaccgggtcta tagatcgtaa acgcgcacaaa tacgagctt ttcacaccgt gcgggtccat		900	
152	accggagcag atgaccgatc ctatgaatgt gcaactcaag aagaggatga agatggcata		960	
153	gttgggggtt ctttgcataa gaatctacca atggtagctg caagaaccct aaagatcaat		1020	
154	atcgcaacctt ttgggtccgt ttgtttttccc ataagcgaga agtttcaattt ctgttgagg		1080	
155	tgcgtttaaaa agaagtttctt caaccccaag ctaaagcatt acattccggta ttcaagctc		1140	
156	gcatttcgagc atttctgtat ccatgcgggt ggttagagcgc taattgtatgatgatggagaag		1200	
157	aatcttcatc taactccact agacgttgag gcttcaagaa tgacattaca caggtttgg		1260	
158	aatacctt ccagctccat ttgggtacgag ttggcttaca cagaagccaa aggaaggatg		1320	
159	acgaaaggag ataggatttgc gcaatttgc ttgggttcag gttttaaatgt taatagttca		1380	
160	gttgggttgc ctcttcgtaa cgtcaagcct tctactaata atcccttggga acagttctaa		1440	
161	cacaaatatac cagttgagat cgatataatgt ttaaaagag			1479
163	<210> SEQ ID NO: 4			
164	<211> LENGTH: 493			

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165 <212> TYPE: PRT
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 168 <400> SEQUENCE: 4
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 172 20 25 30
 173 Val Glu Ala Ser Arg Leu Ser Thr Gln Asp Leu Gln Asn Phe Tyr Leu
 174 35 40 45
 175 Tyr Leu Gln Asn Asn His Thr Ser Leu Thr Met Phe Phe Leu Tyr Leu
 176 50 55 60
 177 Ala Leu Gly Ser Thr Leu Tyr Leu Met Thr Arg Pro Lys Pro Val Tyr
 178 65 70 75 80
 179 Leu Val Asp Phe Ser Cys Tyr Leu Pro Pro Ser His Leu Lys Ala Ser
 180 85 90 95
 181 Thr Gln Arg Ile Met Gln His Val Arg Leu Val Arg Glu Ala Gly Ala
 182 100 105 110
 183 Trp Lys Gln Glu Ser Asp Tyr Leu Met Asp Phe Cys Glu Lys Ile Leu
 184 115 120 125
 185 Glu Arg Ser Gly Leu Gly Gln Glu Thr Tyr Val Pro Glu Gly Leu Gln
 186 130 135 140
 187 Thr Leu Pro Leu Gln Gln Asn Leu Ala Val Ser Arg Ile Glu Thr Glu
 188 145 150 155 160
 189 Glu Val Ile Ile Gly Ala Val Asp Asn Leu Phe Arg Asn Thr Gly Ile
 190 165 170 175
 191 Ser Pro Ser Asp Ile Gly Ile Leu Val Val Asn Ser Ser Thr Phe Asn
 192 180 185 190
 193 Pro Thr Pro Ser Leu Ser Ser Ile Leu Val Asn Lys Phe Lys Leu Arg
 194 195 200 205
 195 Asp Asn Ile Lys Ser Leu Asn Leu Gly Gly Met Gly Cys Ser Ala Gly
 196 210 215 220
 197 Val Ile Ala Ile Asp Ala Ala Lys Ser Leu Leu Gln Val His Arg Asn
 198 225 230 235 240
 199 Thr Tyr Ala Leu Val Val Ser Thr Glu Asn Ile Thr Gln Asn Leu Tyr
 200 245 250 255
 201 Met Gly Asn Asn Lys Ser Met Leu Val Thr Asn Cys Leu Phe Arg Ile
 202 260 265 270
 203 Gly Gly Ala Ala Ile Leu Leu Ser Asn Arg Ser Ile Asp Arg Lys Arg
 204 275 280 285
 205 Ala Lys Tyr Glu Leu Val His Thr Val Arg Val His Thr Gly Ala Asp
 206 290 295 300
 207 Asp Arg Ser Tyr Glu Cys Ala Thr Gln Glu Glu Asp Glu Asp Gly Ile
 208 305 310 315 320
 209 Val Gly Val Ser Leu Ser Lys Asn Leu Pro Met Val Ala Ala Arg Thr
 210 325 330 335
 211 Leu Lys Ile Asn Ile Ala Thr Leu Gly Pro Leu Val Leu Pro Ile Ser
 212 340 345 350
 213 Glu Lys Phe His Phe Phe Val Arg Phe Val Lys Lys Lys Phe Leu Asn
 214 355 360 365

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Input Set : N:\Crf3\RULE60\09883797.txt
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215 Pro Lys Leu Lys His Tyr Ile Pro Asp Phe Lys Leu Ala Phe Glu His
 216 370 375 380
 217 Phe Cys Ile His Ala Gly Gly Arg Ala Leu Ile Asp Glu Met Glu Lys
 218 385 390 395 400
 219 Asn Leu His Leu Thr Pro Leu Asp Val Glu Ala Ser Arg Met Thr Leu
 220 405 410 415
 221 His Arg Phe Gly Asn Thr Ser Ser Ser Ile Trp Tyr Glu Leu Ala
 222 420 425 430
 223 Tyr Thr Glu Ala Lys Gly Arg Met Thr Lys Gly Asp Arg Ile Trp Gln
 224 435 440 445
 225 Ile Ala Leu Gly Ser Gly Phe Lys Cys Asn Ser Ser Val Trp Val Ala
 226 450 455 460
 227 Leu Arg Asn Val Lys Pro Ser Thr Asn Asn Pro Trp Glu Gln Cys Leu
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 235 <213> ORGANISM: Arabidopsis thaliana
 237 <400> SEQUENCE: 5
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 240 gcaggattag ccatgaaagg atctaagatc aacgtagaag atctccaaaa gtttccctc 120
 241 caccatacac agaacaacctt ccaaaccata agccttctat tgtttcttgc cgttttgtg 180
 242 tggatcctct acatgttaac ccgacctaaa cccgtttacc ttgttgcattt ctctgtcac 240
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 249 aaactcagag acaacatcaa gagtttgaat ctgggggg tgggttgcag tgccggagtt 660
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 256 cctcttgcgttccattaaa agagaagctt gccttcttta ttacttttgc caagaagaag 1080
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 261 atttggcaga ttgtcttggg gtcagggttt aagtgttaaca gttcagttatgc ggtggctctg 1380
 262 cgagacgttac gtcagggtttttt aagtgttaaca gttcagttatgc ggtggctctg 1440
 263 gagattgata tt tggaaagact gtatggatag atatccgggtt 1500
 265 <210> SEQ ID NO: 6
 266 <211> LENGTH: 504 1512

VERIFICATION SUMMARY

PATENT APPLICATION: US/09/883,797

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